Space Weather Forecast

Issued on Sunday 16 March 2025 at 12:15 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate class flares likely. Chance G1/Minor Storms Days 1-2 (16-17 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the last 24 hours. There are currently twelve regions on the visible disc. A region in the south-centre disc is perhaps the most notable region currently on the disc, with recent growth on its southern edge and some weak magnetic complexity developing. The growth does appear to have stalled, however. A previous region of interest in the northwest continues to fade, with the trailing spots very faint. In the southeast a region has seen some ongoing emergence of intermediate spots, however this maintains a relatively simple magnetic structure. Weak growth is apparent in some of the regions in the northern disc. Remaining regions appear small and/or simple at the present time.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds showed the ongoing coronal hole fast wind starting to ease. Speeds declined from elevated levels around 550 km/s to slightly elevated near 450 km/s. Interplanetary Magnetic Field was weak, with the north-south component also weak and variable. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with an ongoing likelihood of isolated Moderate flares and a slight chance of a Strong flare.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing coronal hole fast winds continue to ease a little Day 1 (16 Mar), before a further enhancement is likely later Day 1 or Day 2 (16-17 Mar) from any fast winds associated with a second coronal hole. This enhancement is low confidence, however. Solar winds then easing towards background Days 3-4 (18-19 Mar). Mainly Quiet to Unsettled activity is expected at first, however any further fast wind enhancement will likely bring a spell of Unsettled to Active intervals with a chance of reaching G1/Minor Storm, mainly on Day 2. Geomagnetic activity then easing to become Quiet to Unsettled again later in the period.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, with a slight chance of enhancement should there be any larger flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	30	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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